CLAIMS

We claim:

1. A method of transmitting traffic from a line card to a switching card comprising:

receiving traffic in at least one line card;

directing the traffic to an outgoing port of the line card;

organizing the traffic into a 6 millisecond superframe;

allocating the traffic among a plurality of channels in the 6 millisecond superframe wherein the 6 millisecond superframe operates at a fixed line rate of about 3.1104 Gbps;

transmitting the traffic from the at least one line card to a switching card.

2. The method of Claim 1 wherein the traffic received in the at least one line card is voice traffic.

3. The method of Claim 1 wherein the traffic received in the at least one line card is data traffic.

4. The method of Claim 1 wherein the traffic received in the at least one line card further comprises voice traffic and data traffic.

5. The method of Claim 2 wherein the voice traffic is sampled.

6. The method of Claim 2 wherein the voice traffic is converted into DS0s.

7. The method of Claim 2 wherein the voice traffic is converted into fixed length packets.

8. The method of Claim 4 wherein the voice traffic is sampled.

9. The method of Claim 4 wherein the voice traffic is converted into fixed length packets.

10. The method of Claim 1 wherein the switching card comprises a plurality of input ports and a plurality of output ports.

11. A method of transmitting a signal encoded with a message of fixed size from a line card to a switching card comprising:

receiving serial traffic in a line card;

directing the traffic to an outgoing port of the line card;

converting the traffic from serial to parallel;

organizing the parallel traffic into a 6 millisecond superframe;

allocating the parallel traffic among a plurality of channels in the 6 millisecond superframe;

converting the traffic from parallel to serial; and

transmitting the serial traffic from the line card to a switching card.

12. A bus for coupling a line card to a switching card, comprising:

a plurality of line units; and

a switch for connecting traffic coming from a plurality of outgoing ports on the plurality of line units to a plurality of incoming ports on the plurality of line units; and

at least one 6 millisecond superframe transporting data between at least one line unit of the first plurality and the switch.

13. The bus of Claim 12, wherein each line unit of the plurality of line units further comprises at least one SerDes for converting traffic to from parallel to serial and from serial to parallel.

14. The bus of Claim 12, wherein at least one line unit further comprises at least one codec for sampling voice traffic coming into the line unit.

15. The bus of Claim 12, wherein at least one line unit further comprises at least one access processor for converting data into a format for transport over the 6 millisecond superframe.

16. The bus of Claim 12, wherein at least one line unit further comprises at least one incoming line of voice traffic.

17. The bus of Claim 12, wherein at least one line unit further comprises at least one incoming line for data traffic.

18. The bus of Claim 17, wherein at least one incoming line of data traffic is connected to the serdes.

19. The bus of Claim 14, wherein the access processor converts the voice traffic into packets.

20. The bus of Claim 12, wherein the serdes converts parallel traffic to serial traffic.

21. The bus of Claim 15, wherein the access processor allocates which outgoing port on the line unit the formated data is sent through.

22. A signal encoded with a message, the message comprising:

a plurality of contiguous bytes of traffic; and

a plurality of contiguous nibbles of signaling wherein there is one nibble of signaling for each byte of traffic.

23. The signal of Claim 22, further comprising:
a header preceding the bytes of traffic.

24. The signal of Claim 22, wherein the header further comprises a frame sequence number byte such that the frame sequence number byte identifies the position of the signal within a 6 millisecond superframe.

25. The signal of Claim 22, wherein each byte of traffic is a B-channel.

26. The signal of Claim 22, wherein the nibbles of signaling traffic immediately follow the B-channels.

27. The signal of Claim 22, wherein the message is 64-bytes.

28. The signal of Claim 22, further comprising:
at least one control byte immediately following the signaling traffic such that the control byte allows software to send messages from a trunk card to a line unit card.

29. The signal of Claim 28, further comprising:
at least one pad byte immediately following the control byte.

30. The signal of Claim 27, wherein the bytes of B-channel traffic further comprise at least 24 bytes.

31. The signal of Claim 28, wherein the nibbles of signaling traffic further comprise at least 12 bytes.

32. The signal of Claim 27, wherein the bytes of B-channel traffic further comprises at least 30 bytes.

33. The signal of Claim 22, wherein the nibbles of signaling traffic further comprises at least 15 bytes.

34. The signal of Claim 23, wherein the header further comprises at least 16 bytes.

35 A signal encoded with a message, the message comprising:

a plurality of contiguous B-channels wherein each B-channel is a byte;

a plurality of contiguous nibbles of signaling immediately following the B-channels wherein there is one nibble of signaling for each B-channel; and

a header preceding the B-channels, wherein the message is 64-bytes.

36. A signal encoded with a message, the message comprising:

a plurality of contiguous B-channels wherein each B-channel is a byte;

a plurality of contiguous nibbles of signaling immediately following the B-channels wherein there is one nibble of signaling for each B-channel;

a header preceding the B-channels;

at least one frame sequence field such that the frame sequence field identifies the position of the signal within a 6 millisecond superframe and wherein the frame sequence field is located between the header and the B-channels; and

at least one control byte immediately following the signaling traffic such that the control byte allows software to send messages from a trunk card to a line unit card.

37. A device creating a signal encoded with a message, the message comprising:

a plurality of contiguous B-channels wherein each B-channel is a byte;

a plurality of contiguous nibbles of signaling immediately following the B-channels wherein there is one nibble of signaling for each B-channel; and

a header preceding the B-channels, wherein the message is 64-bytes.

38. A device creating a signal encoded with a message, the message comprising:

a plurality of contiguous B-channels wherein each B-channel is a byte;

a plurality of contiguous nibbles of signaling immediately following the B-channels wherein there is one nibble of signaling for each B-channel;

a header preceding the B-channels;

at least one frame sequence field such that the frame sequence field identifies the position of the signal within a 6 millisecond superframe and wherein the frame sequence field is located between the header and the B-channels; and

at least one control byte immediately following the signaling traffic such that the control byte allows software to send messages from a trunk card to a line unit card, wherein the message is 64-bytes.

39. A process for encoding payload of a message, the process comprising:

arranging a plurality of contiguous B-channels;

placing a plurality of contiguous nibbles of signaling immediately following the B-channels;

preceding the B-channels with a header; and

locating at least one byte containing a frame sequence field between the header and the B-channels, wherein the message is 64-bytes.

40. A process for encoding payload of a message, the process comprising:

arranging a plurality of contiguous B-channels;

placing a plurality of contiguous nibbles of signaling immediately following the B-channels;

preceding the B-channels with a header;

locating at least one frame sequence field such that the frame sequence field identifies the position of the signal within a 6 millisecond superframe and wherein the frame sequence field is located between the header and the B-channels; and

at least one control byte immediately following the signaling such that the control byte allows software to send communications from a trunk card to a line unit card, wherein said message is 64-bytes.

41. A GigaPoint Bus based on a 6 millisecond superframe, comprising:

packetized traffic; and

frame traffic wherein the GigaPoint operates at a fixed line rate of 3.1104 Gbps.

42. The GigaPoint Bus of Claim 41, wherein the packetized traffic is selected from the group consisting of TDM, Multicast or Broadband traffic.

43. The GigaPoint Bus of Claim 41, wherein the framing traffic includes STS traffic.

44. The GigaPoint Bus of Claim 41, wherein the 6 millisecond superframe further comprises 48 125 microsecond frames.

45. The GigaPoint Bus of Claim 41, wherein the 6 millisecond superframe further comprises the equivalent of 60 STS-1 channels.

46. The GigaPoint Bus of Claim 45, wherein each superframe uses a plurality of overhead bytes.

47. The GigaPoint Bus of Claim 45, wherein said plurality of overhead bytes are located in the first of the equivalent 60 STS-1 channels in the 6 millisecond superframe.

48. The GigaPoint Bus of Claim 41, wherein the superframe operates at a fixed line rate of 3.1104 Gbps.

49. The GigaPoint Bus of Claim 45, wherein each channel is allocated to a type selected from the group consisting of packets, Broadband traffic or STS.

50 A shelf comprising:

a plurality of line units selected from the group consisting of POTS, DS1, SONET, POTS/DSL;

a switch for directing traffic to an intended destination; and

a plurality of 6 millisecond superframes wherein there is at least one 6 millisecond superframe between each line unit in the plurality of line units and the switch.

51. The shelf of Claim 50, wherein each 6 millisecond superframe operates at a line rate of 3.1104 Gbps.

52. A method of transmitting traffic from a line card to a switching card comprising:

transmitting traffic in a plurality of 125 microsecond frames in the 6 millisecond superframe, wherein the 6 millisecond superframe operates at a fixed line rate of about 3.1104 Gbps, each frame having a number of overhead bytes, including an overhead byte used to denote a state of configuration, and another overhead byte that monotonically changes across frames; and

rebooting when said monotonically changing byte reaches a predetermined limit after an active reset signal is received.

53. The method of Claim 52 wherein the monotonic change is decreasing from 48 to zero.

54. The method of Claim 53 further comprising:

changing a bit the byte denoting configuration state in response to a change in an early extraction signal on a pin of a connector, indicating upcoming removal of the line card.

55. The method of Claim 54 wherein each frame further comprises:

an overhead byte used for framing to dileneate the superframe; and

another overhead byte used to carry parity for entire frame.

56. The method of Claim 55 wherein the traffic includes at least one stream in conformance with SONET transmitted at 2.488 Gbps and another stream of packet data.

57. A signal encoded with a message, the message comprising:

a plurality of contiguous B-channels wherein each B-channel is a byte;

a plurality of contiguous nibbles of signaling immediately following the B-channels wherein there is one nibble of signaling for each B-channel;

a header preceding the B-channels;

at least one frame sequence field such that the frame sequence field identifies the position of the signal within a 6 millisecond superframe and wherein the frame sequence field is located between the header and the B-channels; and

at least one control byte immediately following the signaling traffic such that the control byte allows software to send messages from a trunk card to a line unit card;

using a 6 bit frame count that changes monotonically in the frame sequence field to determine if all frames are received.